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EXAMINER

LIU, MING HUN

ART UNIT	PAPER NUMBER
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2697

DATE MAILED: 06/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/886,028

Applicant(s)

PARK, JIN-HO

Examiner

Ming-Hun Liu

Art Unit

2697

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 2697

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

2. Claims 1 and 3 are objected to because of the following informalities:

Claim 1 is objected to because on line 2, there are two semicolons that concludes the sentence.

Claim 3 is objected to because online 5 of the claim, a first A/D converter is never mentioned in the specifications of the invention. It is assumed in the review of this application that the applicant intended the converter to read as a D/A converter. The claim is thus reviewed under such an assumption.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of US Patent 5,764,216 to Tanaka et al and US Patent 6,166,725 to Isami et al. Tanaka's invention is more detailed and resembles the applicant's invention in implementation

Art Unit: 2697

and motivation. Isami discusses more of an overview of necessary components required for proper functioning of the device that is known in the art.

In reference to claim 1, Tanaka describes a flat panel display that has the capability of generating gamma data having a plurality of values or gradation (column 2, lines 1-4), a column driver unit for converting the gamma data into an analog gradation voltage, and outputting a column signal utilizing the column control signal, R, G, B data and the gradation voltage (column 2, lines 57-64). However, Tanaka fails to elaborate on the remaining portions of the claim dealing with general display components required for proper functioning. Isami, on figure 13, discloses a flat panel display comprising a power unit for supplying constant voltage to each unit (523), a gate voltage generating unit for generating a gate on/off voltage (524), a controller for generating a scan control (510) signal and a column control signal by utilizing driving data and a driving control signal, controlling and outputting timing format of R, G, B data, a scan driver unit (540) for outputting a scan signal utilizing the scan control signal and said gate on/off voltage. And obviously this flat display panel displays a predetermined image by utilizing the scan signal and the column signal. This configuration is commonly known and obvious, if not inherent, to one skilled in the art, is the display infrastructure that Tanaka fails to describe in detail and the particulars of Usami simply provides the conventional elements of an LCD display system.

In reference to claim 2, it can also be seen in figure 5 of Isami that the controller transmits R, G, B data of a plurality of bits (Data bus) and gamma data (251a and 251b) of a plurality of bits to said column driver unit through different transmission line.

In reference to claim 4, Isami describes a controller that further comprises a signal processing unit (510) for controlling timing format of the R, G, B data by utilizing driving data and a driving control signal, outputting the controlled result, and generating and outputting a scan control signal and a column control signal (column 2, lines 62-67). Tanaka describes the use a gamma data generating unit (figure 4, item 301) for generating a plurality of data for gradation with reference to the constant voltage (figure 4, VR) supplied from said power unit and outputting gamma data. It can also be seen from figure 4 that a mixer unit (302 and) is used for mixing the gamma data to a blanking section of the R, G, B data and outputting the mixed result, wherein the R, G, B data and the gamma data are transmitted through an identical line (column 2, lines 25-40).

5. Claims 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Isami as applied to claim 1 above, and further in view of US patent 5,363,118 to Okumura and US patent 6,160,532 to Kaburagi et al.

In reference to claim 3, the column driver unit described by the applicant is a one that is similar to conventional column drivers. As seen from Isami the display comprises a plurality of column driver ICs. Tanaka describes a gamma correction circuit where a first memory (figure 5, item 11) for storing the gamma data (column 7, lines 11-13), a first decoder for decoding the gamma data stored in said first memory (figure 5, item 14, and column 7, lines 26-28), a first A/D converter (figure 3, item 202) for converting the decoded gamma data into an analog gradation voltage and outputting the converted analog gradation voltage. The next elements are not explicitly described in by Tanaka, however Okumura describes the use of registers and

latches in driving a display. As exhibited by Okumura in figure 2 display drivers require a first shift register for sequentially shifting output in correspondence to a column line (item 403 and column 2, lines 4-13) and a first data latch for storing in column line unit data of corresponding capacity from among R, G, B data in accordance with the output of said first shift register (item 407 and column 2, lines 15-23). Now referring back to Tanaka, figure 22 shows a second D/A converter (42A) for selecting and outputting gradation voltage corresponding to data value supplied from said first data latch. Finally, the limitation of a first buffer for buffering the gradation voltage output from said second D/A converter, and outputting a column signal in line units is not explained in by Tanaka, however such practice is also very common to the art. A buffer as shown in Kaburagi is commonly used to ready the signal before relaying it to the LCD. It would have been obvious to one skilled in the art to incorporate the elements described by Okumura and Kaburagi as they are common display components used in display panels today and supply standard details that are not explicitly shown by the higher level disclosure of Tanaka.

Claim 5 is rejected on the grounds similar to the rejection of claim 3. The added element of a data driving unit for driving the R, G, B, data and the gamma data is disclosed in figure 7 selector circuit 24. The functionality of the selector circuit is described in column 9, lines 53-59.

6. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Isami and further in view of US patent 6,480,180 to Moon. Several of the limitations described in this claims have been previously addressed in the rejections of claims 1 and 4. As for newly added limitations concerning the use of differential signals, Moon adequately addresses these new components.

As to claim 6, on column 7, lines 64-67 in conjunction with figure 9, Moon describes that the with the reference to the voltage supplied from a power unit, and encoding and outputting in differential signal the scan control signal, column signals R, G, B data. On column 4 and referring to figure 3, Moon describes the main functionality of the different components required and more specifically elaborates on lines 38-41, a driver unit (item 3) for decoding the scan control signal included in the differential and outputting a scan signal initializing the scan control signal.

As to claim 7, Moon clearly shows in figure 4 a differential signal transmitting unit for encoding into differential signal the scan control signal, column control signal, R, G, B data, and transmitting the result.

It would have been obvious to one skilled in the art to incorporate these differential signal units into the invention first for the purpose of reducing the EMI. As disclosed by Moon, these differential signal components are essential, if not standard, for the functionality of the differential systems, however they were just not explicitly shown by the higher level discloser by Tanaka.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka, Isami, Okumura and Kaburagi and further in view of Moon.

As established in the rejection of claims 6 and 7, there are critical components in differential signal systems that are required to ensure proper functionality. Moon discloses a differential signal receiving unit for decoding the differential signal (column 6, lines 51-54). It would have been obvious to one skilled in the art to incorporate these differential signal units into the invention first for the purpose of reducing the EMI. As disclosed by Moon's invention

Art Unit: 2697

these differential signal components are essential, if not standard, to the differential signal systems, however they were not explicitly shown by the higher level discloser by Tanaka.

8. Claims 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Isami in view of Moon and in further view of the applicant's own admission.

As explained on page 2 of the applicant's disclosure, he explains that differential signals methods such as RSDS, LVDS, and TMDS are known methods in the art to overcome EMI troubles. Furthermore, as mentioned in the specification on page 11, the applicant acknowledges that these three formats are easily interchanged and applied. To one of ordinary skill in the art it would have been obvious to use these types of signals because of their conventionality and as stated by the applicant on page 2, lines 2-4, of the specification "to overcome EMI trouble, while at the same time accomplishing high speed data transmission with low power consumption, a method of transmitting, in a differential signal, video signals including data"

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US patent 6,025,822 to Motegi et al.: RGB with common register and latch layouts

US patent 5,754,150 to Matsui: Gamma correction in display.

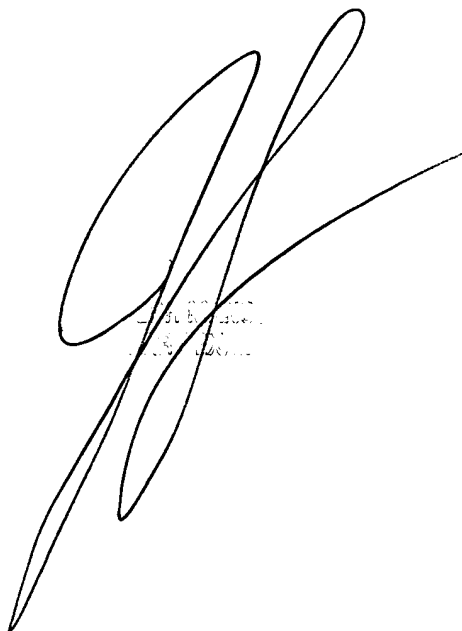
Art Unit: 2697

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ming-Hun Liu whose telephone number is 703-305-8488. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on 703-305-3885. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

Ming-Hun Liu
June 16, 2003

A handwritten signature in black ink, consisting of a large, stylized 'M' followed by a long, sweeping horizontal stroke that extends to the right.